

Notice of Allowability

Application No.

10/816,119

Examiner

Brian Ensey

Applicant(s)

JULSTROM ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment dated 11/8/06.
2. ☒ The allowed claim(s) is/are 1-1 and 36-47 renumbered 1-30.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ognyan Beremski on 01/17/07.

The application has been amended as follows:

In the claims:

In claim 1, line 6, "at least one" has been deleted and -- a -- has been inserted before "telecoil".

In claim 1, line 9, "said" has been deleted and --the--has been inserted after "wherein".

In claim 6, line 3, --at-- has been inserted after "positioned".

In claim 10, line 9, "to telecoils" has been deleted and -- a telecoil-- has been inserted after "coupling".

In claim 36, line 9, "at least one" has been deleted and -- a -- has been inserted before "telecoil".

In claim 39, line 9, "at least one" has been deleted and -- a -- has been inserted before "telecoil".

In claim 41, line 6, "at least one" has been deleted and -- a -- has been inserted before "telecoil".

In claim 42, line 6, "at least one" has been deleted and -- a -- has been inserted before "telecoil".

In claim 43, line 6, "at least one" has been deleted and -- a -- has been inserted before "telecoil".

In claim 44, line 6, "at least one" has been deleted and -- a -- has been inserted before "telecoil".

In claim 45, line 6, "at least one" has been deleted and -- a -- has been inserted before "telecoil".

In claim 46, line 6, "at least one" has been deleted and -- a -- has been inserted before "telecoil".

In claim 47, line 6, "at least one" has been deleted and -- a -- has been inserted before "telecoil".

The following is an examiner's statement of reasons for allowance: The present invention is directed to a multiple coil coupling system for hearing aid applications. Independent claims 1 and 36 identify the uniquely distinct feature of an inductor comprising two separate inductors that are spatially oriented differently from one another for coupling a signal from a hearing improvement device to the telecoil of a hearing aid as discussed in the applicant's arguments on pages 17 and 18 and in combination with all the disclosed limitations of claims 1 and 36. Independent claim 39 identifies the uniquely distinct feature of an inductor comprising two separate inductors that are spatially oriented differently from one another for coupling a signal from a hearing improvement device to the telecoil of a hearing aid as discussed in the applicant's

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arguments on pages 21 and 22 and in combination with all the disclosed limitations of claim 39. Independent claim 41 identifies the uniquely distinct feature of a coupling inductor for a hearing device comprising an ITE transmit inductor and a BTE transmit inductor and a switch to selectively enable and disable either one or both inductors in combination with all the disclosed limitations of claim 41. Independent claim 42 identifies the uniquely distinct feature of an inductor for coupling to the telecoil of a hearing aid and positioned to magnetically couple with a vertically-oriented telecoil located within a hearing aid wherein the transmit inductor comprises a coil, wherein wire gauge and number of turns of the coil are chosen to give inductance and resistance values allowing peak current, wherein peak current comprises a level of current sufficient to drive an iron core of the transmit inductor to a saturation edge in combination with all the disclosed limitations of claim 42. Independent claim 43 identifies the uniquely distinct feature of an inductor for coupling to the telecoil of a hearing aid and positioned to magnetically couple with a vertically-oriented telecoil located within a hearing aid wherein the transmit inductor is divided into two windings spaced a distance apart by a winding gap and the two windings are positioned on a common core and adapted to improve uniformity of the magnetic fields induced by the transmit inductor edge in combination with all the disclosed limitations of claim 43. Independent claim 44 identifies the uniquely distinct feature of an inductor for coupling to the telecoil of a hearing aid and positioned to magnetically couple with a vertically-oriented telecoil located within a hearing aid wherein the windings of the transmit inductor extend as close as practical to an end of the core of the inductor to maintain a uniform field near ends of the core in combination with all the disclosed limitations of claim 44. Independent claim 45 identifies the uniquely distinct feature of an inductor comprising an inductor pair and

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constructed with a coil of at least two windings spaced a distance apart by winding gaps, wherein the winding gaps of each inductor of the inductor pair permits inductors to overlap within respective winding gaps to minimize thickness of the inductor pair and positioned to magnetically couple with a vertically-oriented telecoil located within a hearing aid in combination with all the disclosed limitations of claim 45. Independent claim 46 identifies the uniquely distinct feature of an inductor for coupling to the telecoil of a hearing aid and produces a flat frequency response at an output of a receiving telecoil, the frequency- dependent drive voltage response compensates for a combined frequency response, and wherein a transmit inductor drive voltage produces a flat receiving telecoil frequency response, and wherein overall magnetic coupling response is uniform over a speech frequency range in combination with all the disclosed limitations of claim 46. Independent claim 47 identifies the uniquely distinct feature of an inductor pair for coupling to the telecoil of a hearing aid in which the inductor pair is constructed to avoid buildup of field strength near a center of each inductor and the overlapped inductors provide a magnetic field adapted to couple to a variety of hearing aids types comprising a range of receiving telecoil positions in combination with all the disclosed limitations of claim 47. The closest prior art, Widrow (US 5737430) teaches a directional hearing aid with an inductive neck loop to transmit to the telecoil of a hearing aid; Jacobs (US 6516075) teaches an inductive loop with a selectable number of windings to vary the transmit distance/strength to the telecoil of a hearing aid; Valente (Hearing Aids." Standards, Options, and Limitations" 1996) teaches a magnetic field emanating comprises approximately 30 mA/meter at 1 kHz to meet the standard set by IEC-118-1 for sufficient signal strength for transmission from an inductive loop to a hearing device; Crouch (US 6320959) teaches an

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inductor coil of a hearing improvement device is positioned adjacent to the hearing aid, the hearing improvement device being located behind an ear and next to the head of a user providing coupling of a magnetic field generated by a transmit inductor coil within the hearing improvement device to a receiving telecoil located within the hearing aid having uniform magnetic coupling strength over a range of telecoil positions within the hearing aid; and Hall (US 6307945) teaches a hearing improvement device with a selector to choose from two different sound field microphone locations. The prior art fails to anticipate or render the independent claims obvious.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance." Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Ensey whose telephone number is 571-272-7496. The examiner can normally be reached on Monday - Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
P.O. Box 1450
Alexandria, Va. 22313-1450

Or faxed to:

(571) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "PROPOSED" or "DRAFT".
Hand-delivered responses should be brought to:


Customer Service Window

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Randolph Building
401 Dulany Street
Arlington, VA 22314

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BKE
January 17, 2007


SINH TRAN
SUPERVISORY PATENT EXAMINER